AeroStat: Online Platform for Statistical Inter-comparison of Aerosols

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What is AeroStat?

AeroStat is a new NASA GES DISC Giovanni online visualization portal. It is an online environment for the direct statistical intercomparison of global aerosol parameters, in which the provenance and data quality can be easily accessed by scientists.

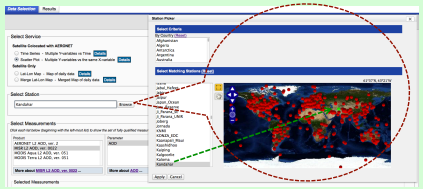
AeroStat also provides a collaborative research environment where scientists can seamlessly share AeroStat workflow execution, algorithms, best practices, known errors and other pertinent information with the science community.

What can AeroStat do:

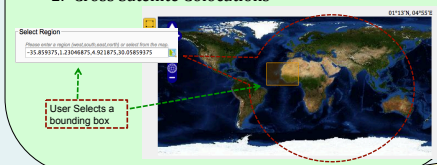
- Provide an effective tool for comparing satellite and ground-based aerosol Level 2 data
- Provide an environment for colocation and comparison methods with detailed documentation
- Provide aerosol bias adjustment to satellite data based on ground-based measurement
- Explore aerosol phenomena by merging multi-sensor data
- Enable easy sharing of results

AeroStat Data

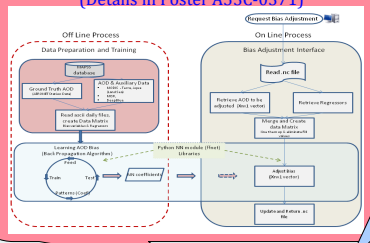
- AeroStat supports data derived from Level 2 measurements (AERONET, MODIS Terra, MODIS Aqua, MISR)
- Two types of colocation data
  1. Satellite Colocated with AERONET stations

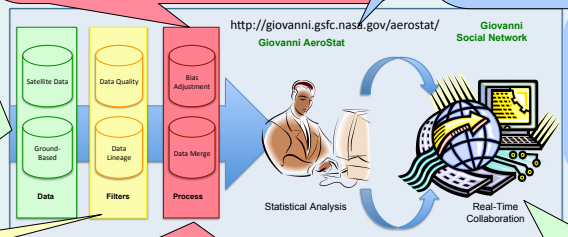


  2. Cross Satellite Colocations



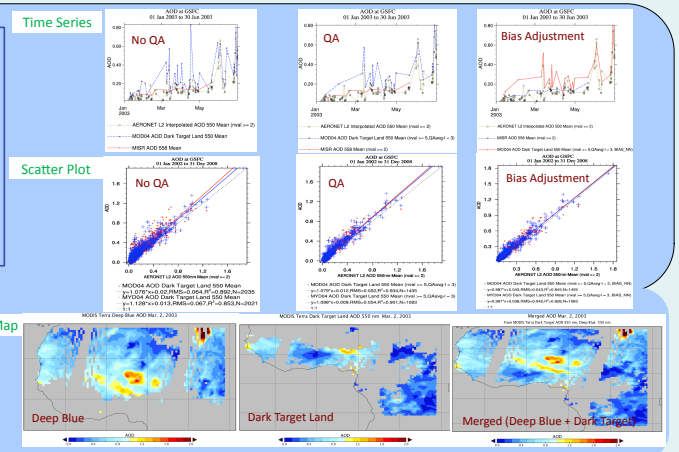
Flowchart of Bias Adjustment using Neural Network (Details in Poster A53C-0371)



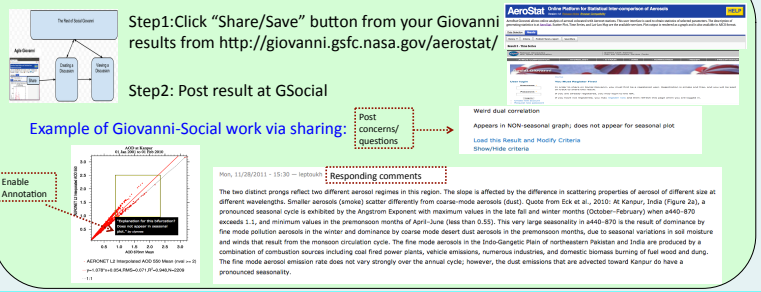


Aerostat Services

- Data colocated with AERONET
  - Time Series with QA and bias adjustment options
  - Scatter Plot with QA and bias adjustment options
- Data colocated with satellite only (cross satellites)
  - Gridded Daily Lat-Lon Map
  - Merged Gridded Daily Lat-Lon Map

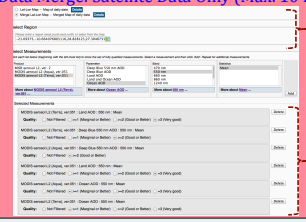


How does Giovanni-Social work? (Details in Oral IN33E-05 at 2:40 – 2:55 pm Wednesday)



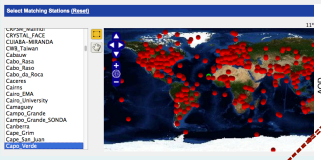
Data Quality Filters

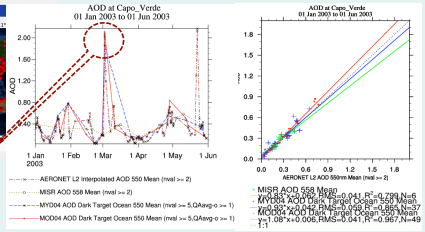
Data Merge: Satellite Data Only (Max. 10 Days Period)



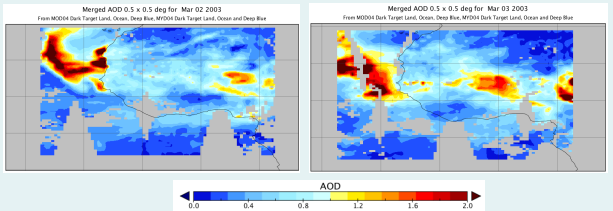
- Max. bounding box is 100 degrees
- Allow up to 8 variables to be merged (including QA options)

Case Study: Dust Storm Episode (March 1 ~ 5, 2003)





Dust Storm Transport (Multi-sensors products merged)



Down the Road:

- Add bias adjustment for MISR colocated with AERONET data
- Add bias adjustment for "Satellite Only" service
- Routinely process and ingest for colocated satellite and AERONET data
- Fold AeroStat Giovanni into mainstream Giovanni
- Add features based on users feedback

http://giovanni.gsfc.nasa.gov/aerostat/

This project was supported by ACCESS (Accelerating Collaborative Connections for Earth System Science)